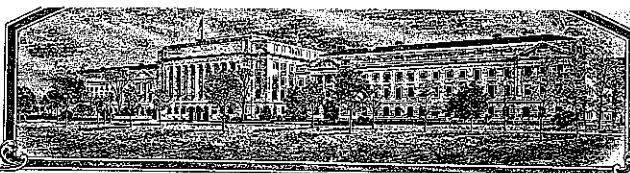


No.

200300035



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

NSH Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

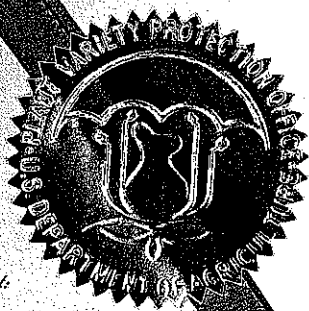
AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE SEED. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, DURUM

'Pierce'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty ninth day of April, in the year two thousand three.



Attest:

Paul M. Jakub

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Am. Foreman

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

1. NAME OF OWNER NDSU Research Foundation		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME D941038		3. VARIETY NAME 'Pierce'	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) C/O Executive Director PO Box 5002 1725 NDSU Research Park Dr. Fargo, ND 58105-5002		5. TELEPHONE (include area code) (701) 231-8931		FOR OFFICIAL USE ONLY PVPO NUMBER 200300035	
		6. FAX (include area code) (701) 231-6661		FILING DATE Nov. 15, 2002	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) NDSU Research Foundation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION North Dakota		9. DATE OF INCORPORATION May, 1989	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Elias Elias Department of Plant Sciences North Dakota State University PO Box 5051 Fargo, ND 58105-5051 Dale Zetocha Executive Director NDSU Research Foundation PO Box 5002 1735 NDSU Research Park Drive Fargo, ND 58105-5002				FILING AND EXAMINATION FEES: \$ 2705.00 DATE 11/15/2002 CERTIFICATION FEE \$ 432.00 DATE 4/18/03	
11. TELEPHONE (include area code) (701) 231-8159		12. FAX (include area code) (701) 231-8474		13. E-MAIL elias.elias@ndsu.nodak.edu	
14. CROP KIND (Common Name) Durum wheat		15. GENUS AND SPECIES NAME OF CROP Triticum Turgidum L. var. durum		16. FAMILY NAME (Botanical) Gramineae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)			
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input checked="" type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input type="checkbox"/> NO (If "no", go to item 22)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED			
21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED NUMBER 1,2,3, etc. (If additional explanation is necessary, please use the space indicated on the reverse.)		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER Dale Zetocha		SIGNATURE OF OWNER			
NAME (Please print or type) Dale Zetocha		NAME (Please print or type)			
CAPACITY OR TITLE Executive Director NDSU Research Foundation		DATE 11/14/02		CAPACITY OR TITLE	
				DATE	

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

USA named and released as a cultivar June 21, 2001

Seed first distributed to ND County Crop Improvement March 27, 2002

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (07-01) designed by the Plant Variety Protection Office with WordPerfect 9.0. Replaces STD-470 (04-01) which is obsolete.

EXHIBIT A - ORIGIN AND BREEDING HISTORY

'Pierce'

Fall 1990 Original cross was made at North Dakota State University (NDSU) greenhouse.

Pedigree - D86117/D88289

D86117 - Monroe/D87209
 D87209 - D74111/Cando
 D874111 - W85GH-285/D804
 D804 - D77204/D7618
 D77204 - D7224/Ward
 D7224 - D5988/D5962//Ward
 D5988 - Ld393/Yuma2
 D5962 - Ld398//Ld357/Stewart464-Ld357
 D7618 - D7233/Edmore
 D7233 - D6515/Ward
 D6515 - Ld393/Yuma2//(Ld98/Ld357-
 Stewart464)

D88289 - D8189/D81141
 D8189 - D68111/Rugby//Wrad/3/Vic
 D68111 - D65150/Leeds
 D65150 - Pi/TM//2*Tc/3/ZB/Wells
 D81141 - D72114/Edmore//D781
 D72114 - D65150/leeds//Ward
 D781 - D7233/Edmore//D68112/Ward
 D7233 - D6515/Ward
 D6515 - Ld393/Yuma2//(Ld98/Ld357-
 Stewart464)
 D68112 - D65150/Leeds
 D65150 - Pi/TM//2*Tc/3/ZB/Wells

Spring 1991 F₁ plants, NDSU greenhouse.

Summer 1991 F₂ plants, NDSU research land.

Summer 1992 F₃ head rows, NDSU research land.

Summer 1993 F₄ head rows, NDSU greenhouse.

Summer 1994 F₅ head rows, NDSU research land.

Summer 1995	F ₆ preliminary yield trial, two locations, NDSU research land. Experimental line designation - D941038.
Summer 1996	F ₇ Advanced yield trial, two locations, NDSU research land.
Summer 1997	F ₈ Elite yield trial, three locations, NDSU research land.
Summer 1998	F ₉ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.
Summer 1999	F ₁₀ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.
Summer 2000	F ₁₁ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.
Summer 2000	Seed increase by Seedstocks Project.
Summer 2001	Second seed increase by Seedstocks Project
June 1, 2001	D941038 was released as a named cultivar, Pierce.
March 27, 2002	First sale of Pierce.

Pierce was observed for seven generations from 1994 to 2000 and was shown to be stable and uniform. Pierce has been rogued at the F₅ and subsequent generations. The frequency of rogued plants in each generation was less than 1/1000 plants. No variants were found in the variety Pierce.

The pedigree breeding method was used to develop Pierce. In early generations F₂ - F₄ high heritable traits such as plant height, maturity, and disease resistance were selected. Starting at F₅ generation, selection criteria also included grain yield, test weight, kernel weight, and pasta quality traits (i.e., protein content, gluten strength, milling extraction, spaghetti color, cooking quality, etc.). Based on data from multiple locations and years Pierce was selected for its high yield, test weight and protein content, and gluten strength.

EXHIBIT B - NOVELTY STATEMENT

To my knowledge, Pierce most nearly resembles Lebsock durum wheat. Pierce and Lebsock durum wheat can be unambiguously differentiated at the molecular level by using microsatellite loci according to Röder et al (1988) Figure 1. DNA fragments analysis was carried out on 6% denaturing polymacrilamide gel using Promega (Madison, WI) DNA silver staining system. The procedure was repeated twice to confirm results.

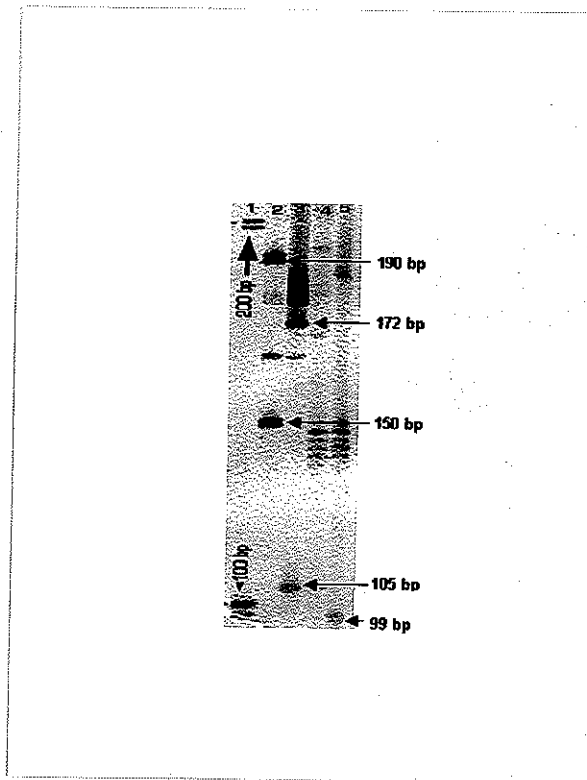


Figure 1. Microsatellite analysis to differentiate Pierce from Lebsock. Lane 1 has the 100 bp ladder marker. Lanes 2 and 3 are for one locus, and lanes 4 and 5 for another. Using the microsatellite locus *Xgwm136*, Pierce (lane 2) differs from lebsock (lane 3) by a ~ 190 bp band and a ~ 150 bp band. Lebsock has a ~ 172 bp band and 105 ~ bp that Pierce lacks. Using the microsatellite *Xgwm626*, Pierce (lane 4) lacks a ~ 99 pb band present in Lebsock (lane 5).

Reference.

Röder, M.S., V. Korzum, K. Wendehake, J. Plashke, M. Tixier, P. Leroy, and M.W. Ganal. 1998. A microsatellite of wheat. *Genetics* 149:207-2023.

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-0055

Instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S) NDSU Research Foundation	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or RD No., City, State, and Zip Code) NDSU Research Foundation 1735 NDSU Research Park Drive PO Box 5002 Fargo, ND 58105-5002	PVPO NUMBER 200300035
	VARIETY NAME Pierce
	TEMPORARY OR EXPERIMENTAL DESIGNATION D941038

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____

Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

1=Common
2=Durum
3=Club
4=Other (SPECIFY): _____

2. VERNALIZATION:

1=Spring
2=Winter
3=Other (SPECIFY): _____

3. COLEOPTILE ANTHOCYANIN:

1 = Absent 2 = Present

4. JUVENILE PLANT GROWTH:

1 = Prostrate 2 = Semi-erect 3 = Erect

5. PLANT COLOR (boot stage):

1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF (boot stage):

1 = Erect
2 = Recurved

1 = Not Twisted
2 = Twisted

1 = Wax Absent
2 = Wax Present

7. EAR EMERGENCE:

Number of Days (Average)

Number of Days Earlier Than Mountrail *

Same as Lebsack *

Number of Days Later Than Munich *

* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

6

200300035

8. ANTHER COLOR:

☐ 1 = Yellow
☐ 2 = Purple

9. PLANT HEIGHT (from soil to top of head, excluding awns):

☐ 0 ☐ 9 ☐ 2 cm (Average)

☐ 0 ☐ 3 cm Taller Than Lebsock *

Same as Mountrail *

☐ 0 ☐ 2 cm Shorter Than Ben *

10. STEM:

A. ANTHOCYANIN

☐ 1 = Absent
☐ 2 = Present

B. WAXY BLOOM

☐ 1 = Absent
☐ 2 = Present

C. HAIRINESS

(last internode of rachis)

☐ 1 = Absent
☐ 2 = Present

D. INTERNODE

☐ 1 = Hollow 2 = Semi-solid 3 = Solid

☐ 4 Number of Nodes

E. PEDUNCLE

☐ 2 1 = Erect 2 = Recurved 3 = Semi-erect

☐ 2 ☐ 1 cm Length

F. AURICLE

☐ 1 Anthocyanin 1 = Absent 2 = Present

☐ 1 Hair 1 = Absent 2 = Present

11. HEAD (at Maturity):

A. DENSITY

☐ 1 = Lax
☐ 2 = Middense (Laxidense)
☐ 3 = Dense

B. SHAPE

☐ 4 1 = Tapering
 2 = Strap
 3 = Clavate
 4 = Other (SPECIFY): oblong

C. CURVATURE

☐ 2 1 = Erect
 2 = Inclined
 3 = Recurved

D. AWNEDNESS

☐ 4 1 = Awnless
 2 = Apically Awnletted
 3 = Awnletted
 4 = Awned

12. GLUMES (at Maturity):

A. COLOR

- ☐ 1 = White
☐ 2 = Tan
☐ 3 = Other (SPECIFY): _____

B. SHOULDER

- ☐ 5 1 = Wanting 2 = Oblique
 3 = Rounded 4 = Square
 5 = Elevated 6 = Apiculate
 7 = Other (SPECIFY): _____

C. SHOULDER WIDTH

- ☐ 2 1 = Narrow
 2 = Medium
 3 = Wide

D. BEAK

- ☐ 3 1 = Obtuse
 2 = Acute
 3 = Acuminate

E. BEAK WIDTH

- ☐ 2 1 = Narrow
 2 = Medium
 3 = Wide

F. GLUME LENGTH

- ☐ 3 1 = Short (ca. 7mm)
 2 = Medium (ca. 8mm)
 3 = Long (ca. 9mm)

G. WIDTH

- ☐ 3 1 = Narrow (ca. 3mm)
 2 = Medium (ca. 3.5mm)
 3 = Wide (ca. 4mm)

200300035

13. SEED

A. SHAPE

- ☐ 3 1 = Ovate
 2 = Oval
 3 = Elliptical

B. CHEEK

- ☐ 2 1 = Rounded
 2 = Angular

C. BRUSH

- ☐ 1 1 = Short
 2 = Medium
 3 = Long
- ☐ 1 1 = Not Collared
 2 = Collared

D. CREASE

- ☐ 1 1 = Width 60% or less of Kernel
 2 = Width 80% or less of Kernel
 3 = Width Nearly as Wide as Kernel

- ☐ 2 1 = Depth 20% or less of Kernel
 2 = Depth 35% or less of Kernel
 3 = Depth 50% or less of Kernel

E. COLOR

- ☐ 2 1 = White
 2 = Amber
 3 = Red
 4 = Other (SPECIFY): _____

F. TEXTURE

- ☐ 1 1 = Hard
 2 = Soft
 3 = Other (SPECIFY): _____

G. PHENOL REACTION (*see instructions*):

- ☐ 1 1 = Ivory
 2 = Fawn
 3 = Light Brown
- 4 = Dark Brown
 5 = Black

H. SEED WEIGHT

- ☐ 3 ☐ 1 g/1000 seed (Whole number only)

I. GERM SIZE

- ☐ 3 1 = Small
 2 = Midsize
 3 = Large

14. Disease : (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

200300035

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

<input checked="" type="checkbox"/> 2 Stem Rust (<i>Puccinia graminis</i> f. sp. <i>tritici</i>) Pgt-QCCJ, -QTHJ, -RTQQ, -THLK, -TPMK, -HPHJ	<input checked="" type="checkbox"/> 2 Leaf Rust (<i>Puccinia recondita</i> f. sp. <i>tritici</i>) THBL, which is the most common race in North Dakota
<input type="checkbox"/> 0 Stripe Rust (<i>Puccinia striiformis</i>)	<input type="checkbox"/> 0 Loose Smut (<i>Ustilago tritici</i>)
<input checked="" type="checkbox"/> 3 Tan Spot (<i>Pyrenophora tritici-repentis</i>) Pti2 (Race1)	<input type="checkbox"/> 0 Flag Smut (<i>Urocystis agropyri</i>)
<input type="checkbox"/> 0 Halo Spot (<i>Selenophoma donacis</i>)	<input type="checkbox"/> 0 Common Bunt (<i>Tilletia tritici</i> or <i>T. laevis</i>)
<input type="checkbox"/> 0 <i>Septoria nodorum</i> (Glume Blotch)	<input type="checkbox"/> 0 Dwarf Bunt (<i>Tilletia controversa</i>)
<input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)	<input type="checkbox"/> 0 Karnal Bunt (<i>Tilletia indica</i>)
<input type="checkbox"/> 0 <i>Septoria tritici</i> (Speckled Leaf Blotch)	<input type="checkbox"/> 0 Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>)
<input checked="" type="checkbox"/> 3 Scab (<i>Fusarium</i> spp.) Natural infection.	<input type="checkbox"/> 0 "Snow Molds"
<input type="checkbox"/> 0 "Black Point" (Kernel Smudge)	<input type="checkbox"/> 0 Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.)
<input type="checkbox"/> 0 Barley Yellow Dwarf Virus (BYDV)	<input type="checkbox"/> 0 Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>)
<input type="checkbox"/> 0 Soilborne Mosaic Virus (SBMV)	<input type="checkbox"/> 0 Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>)
<input type="checkbox"/> 0 Wheat Yellow (Spindle Streak) Mosaic Virus	<input type="checkbox"/> 0 Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)
<input type="checkbox"/> 0 Wheat Streak Mosaic Virus (WSMV)	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> Other (SPECIFY) _____	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> Other (SPECIFY) _____	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> Other (SPECIFY) _____	<input type="checkbox"/> Other (SPECIFY) _____

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

<input type="checkbox"/> 0 Hessian Fly (<i>Mayetiola destructor</i>)	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> 0 Stem Sawfly (<i>Cephus</i> spp.)	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> 0 Cereal Leaf Beetle (<i>Oulema melanopa</i>)	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> 0 Russian Aphid (<i>Diuraphis noxia</i>)	<input type="checkbox"/> Other (SPECIFY) _____

15. INSECT: *Continued* (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

200300035

☒ Greenbug (*Schizaphis graminum*)

☐ Other (SPECIFY) _____

☒ Aphids

☐ Other (SPECIFY) _____

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

EXHIBIT D - Quality Data

Mean quality traits of durum cultivars grown in the drill strips at the Research Extension Centers in North Dakota, 1998-2000.

Variety	STD	Test weight lb/bu	Vit kern %	1000 kwt	Lg %	Sm %	Fall no	Sed mm	Wheat prot %	Semo prot %	Total ext %	Semo ext %	Semo ash %	Specks #/10 sq in	Mixo	Pasta color	Cook wt g	Cook loss %	Firm g cm
Pierce		60.8	92	36.9	56	4	382	50	14.1	13.1	67.0	61.1	0.68	14	7	9.5	30.1	6.6	6.5
Mountrail	S	60.1	92	39.2	56	4	403	42	13.9	13.1	68.1	61.8	0.67	12	5	9.1	30.9	6.3	6.0
Ben	S	60.8	94	42.0	71	3	388	45	14.6	13.7	68.8	62.7	0.69	12	6	9.2	30.2	6.4	6.6
Lebsock	S	61.1	91	39.3	67	3	407	41	13.9	13.0	68.9	62.6	0.67	13	5	9.4	30.4	6.4	6.2
Maier	S	60.2	94	38.8	61	4	397	50	14.7	13.8	68.8	62.4	0.70	12	7	9.6	30.2	6.3	6.9
Monroe	S	59.3	92	41.9	72	3	385	43	14.4	13.4	68.4	61.9	0.69	12	6	9.3	30.3	6.4	6.6
Munich	S	59.5	93	36.8	55	5	387	36	14.3	13.4	68.6	62.1	0.68	11	5	9.7	30.6	6.4	6.4
Plaza	S	59.3	88	36.3	51	5	415	43	13.9	12.9	68.7	61.9	0.69	12	5	9.3	30.3	6.7	6.1
Renville	S	60.1	92	37.8	49	5	393	41	14.2	13.2	69.2	62.9	0.66	12	6	9.4	30.3	6.3	6.5
Belzer		58.7	92	40.6	69	3	393	55	14.2	13.4	68.0	61.4	0.67	13	7	9.1	29.9	6.6	6.6
Rugby		60.1	94	38.3	61	4	376	24	14.5	13.6	68.9	62.7	0.70	15	3	9.2	31.3	6.4	5.4
ACA Vonlea		59.5	95	37.9	63	3	451	41	15.1	14.1	68.1	61.6	0.69	15	6	9.4	30.6	6.3	6.9
Avg. of standards		60.0	92	39.0	60	4	397	43	14.2	13.3	68.7	62.3	0.68	12	6	9.4	30.4	6.4	6.4

Number of locations/years = 18

ACA Vonlea number of locations/years = 14

Data provided by Dr. Frank Manthey

Durum Wheat Quality and Pasta Processing Laboratory

Department of Cereal Science

200300035

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) NDSU Research Foundation	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER D941038	3. VARIETY NAME 'Pierce'
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) C/O Executive Director 1735 NDSU Research Park Drive PO Box 5002 Fargo, ND 58105-5002	5. TELEPHONE (include area code) (701) 231-8931	6. FAX (include area code) (701) 231-6661
7. PVPO NUMBER		200300035

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain ☒ YES ☐ NO9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country ☒ YES ☐ NO10. Is the applicant the original owner? ☐ YES ☒ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☒ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

See additional Exhibit E Statement of the Basis of the Applicant's Ownership included in the application.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

EXHIBIT E - STATEMENT OF THE BASIS OF THE APPLICANT'S OWNERSHIP

Dr. Elias M. Elias, an employee of the North Dakota Agricultural Experiment Station and North Dakota State University, is a plant breeder who developed 'Pierce' the durum wheat cultivar for which Plant Variety Protection is hereby sought. The employee by agreement and because of the condition of the use of facilities and funds of the North Dakota Agricultural Experiment Station and North Dakota State University has assigned all ownership rights to 'Pierce' durum wheat to the North Dakota Agricultural Experiment Station and North Dakota State University.

North Dakota State University on behalf of the North Dakota Agricultural Experiment Station has assigned all ownership to the NDSU Research Foundation. The NDSU Research Foundation is a nonprofit corporation set up to own and manage the intellectual property of North Dakota State University.